

Appl. No. 10/559,879
Amdt. Dated May 29, 2009
Reply to Office Action dated January 29, 2009

REMARKS/ARGUMENTS

Claims 1-16 are pending in the instant application. Applicants reserve the right to file a divisional application to non-elected claim 17.

The following remarks are believed to be fully responsive to the Office Action.

35 USC §103 (Obviousness) Rejections.

Claims 1-6, 8-13, and 16 are rejected under 35 USC §103(a) as being unpatentable over Shah et al. (*Journal of Chemical Society, Perkin transactions 1*, 1998, 13, pp 2043-2046) (Shah) in view of Lubinkowski et al. (*Journal of Organic Chemistry*, 1975, 40, pg. 3010) (Lubinkowski).

First, Applicants respectfully submit that Applicants have been aware of Shah. Shah has been cited in the prior art section of the present application (page 1 lines 24-26). As stated in the present application, there is a variable radiochemical yield with the method described by Shah. Example 3 of the present application confirms the variability of this method. Shah discusses the potential impact of regioselectivity on the outcome of the reaction (page 2044 RHS column to page 2045 LHS column). There is no mention in Shah that decomposition of the iodonium salts by a free radical chain reaction is a factor in the observed variability in radiochemical yield. There is no teaching in Shah to guide one skilled in the art towards inclusion of a free radical trap in the reaction mixture of the method described therein. Applicants wish to remind the Examiner that “the prior art itself must provide a motivation or

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reason for the worker in the art, without the benefit of the Applicant's specification, to make necessary changes in the reference device". See, *Ex parte Chicago Rawhide Manufacturing Co.*, 226 U.S.P.Q. 438 (PTO Bd. App. 1984).

Lubinkowski discloses that, when a reaction of a diaryliodonium salt with sodium alkoxide is carried out in the presence of a radical trap, the main product is an alkyl aryl ether. On page 3 of the present Office Action, the Examiner states that the skilled person would be motivated by Lubinowski to include a radical trap in the method of Shah. The Examiner further states that Lubinowski teaches that radical side reactions can occur in the SN type reaction of a diaryliodonium salt with sodium alkoxide. The Examiner argues that, as Shah also teaches an SN type reaction of a diaryliodonium salt, the skilled person would have been motivated by the teachings of Lubinowski to add a radical trap to the reaction of Shah in order to reduce side reactions. Applicants respectfully disagree.

At the priority date of the present invention (December 23, 2003) ((PCT date December 17, 2004)), the factors influencing yield in the radiofluoridation of iodonium salts included: (i) structure of the iodonium salt; (ii) type of solvent used; (iii) temperature of the reaction; and, (iv) which counterion was used in the reaction. Applicants respectfully submit the attached scientific publications, one from 2004 and three from 2007, in support of the contention that only these four (4) factors were being considered at the priority date of the present invention.

Additionally, one skilled in art would not have combined the teachings of Shah and Lubinowski, as there was a general view at the time of Applicants priority date that fluorine

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chemistry is different from the chemistry of oxygen, because of the smaller size and higher electronegativity of fluorine compared to oxygen. In this regard, Applicants present a the following reference to a text book that describes the different chemistry of organofluoro compounds with comparisons to other classes of organic compounds, i.e. "Organofluorine Chemistry" by R.E. Banks, B.E. Smart, and J.C. Tatlow, Plenum Publishing Corporation. Therefore, teachings relating to reaction of alkoxides with iodonium salts would not have been thought to apply to improvements of a reaction of fluoride with iodonium salts.

In summary our patent application extends the then currently accepted view that the fragmentation of the iodine III fluorine complex explained the fluoridation of iodonium salts and that the chemistry of fluorine is different to that of oxygen. Additionally, the Examiner was recognizing that the ideas on radical inhibition described in the Lubinkowski paper also applied to the fluoridation of iodonium salts of the present invention which is clearly not the case.

Claim 7 is rejected under 35 USC §103(a) as being unpatentable over Shah et al. (*Journal of Chemical Society, Perkin transactions 1*, 1998, 13, pp 2043-2046) (Shah) in view of Lubinkowski as applied to claim 1, and further in view of Chen et al. (Synlett, 2000, No. 8, pgs. 1175-1177) (Chen). The arguments presented above for claim 1 also overcome this claim rejection as claim 7 depends on claim 1.

Accordingly, Applicants respectfully request that the Examiner withdraw the rejections for claims 1-13 and 16 under 35 U.S.C. §103(a) and direct that those claims be allowed.

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Double Patenting.

Claims 1-16 are provisionally rejected under the doctrine of obvious-type double patenting, as being unpatentable over claims 1-15 of copending US patent application 10/559,878 in view of Lubinkowski. In response, Applicants submit that a terminal disclaimer will be filed once the instant application is indicated to be allowable.

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CONCLUSION

Applicants respectfully submit that all outstanding issues have been addressed, and that claims 1-16 are in condition for allowance, which action is earnestly solicited.

The Commissioner is hereby authorized to charge any fees under 37 CFR §1.16(j) or 37 CFR 1.136(a) which may be required, or credit any overpayment, to Deposit Account No. 502-665 in the name of GE Healthcare, Inc.

Should any other matters require attention prior to allowance of the application, it is requested that the Examiner contact the undersigned.

Respectfully submitted,

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